CSE5P: Introduction to Programming (in Python)

Assignment 2

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Instructions

1. The aim of this assignment is to practice **selection (if, else, and elif)** and **repetition structures (while, and for)** in Python.
2. The deadline for the assignment is **01/25/2019 (Friday) 11:59 PM. No late submissions accepted.**
3. The grade of the assignment is out of **100 pts**.
4. Students must use Python3 (NOT Python2) to write the codes.
5. Students are expected to write the code that is easily readable. To this end, they must employ meaningful variable names and comment their code properly.
6. The output of the code requires to be **precisely** as shown in the sample runs.
7. Students must put the code in a file named FirstName_LastName_StudentID_HW2.py and submit it through Canvas.

Please notice that failing to comply any of these requirements will result in losing points at the discretion of the grader.

Exercise

Write a Python program to compute the **average GPA** of the courses taken by a student. The program gets the grade and credit count of each course from the user. The grades can be **A, B, C, D, or F** and the credit counts can be **2, 3, or 5**. The program checks the validity of the grades and credit counts before using them. The program continues ignoring invalid inputs until a valid value is entered by the user. Moreover, the user enters DONE after entering the grade and credit count of all courses. To calculate the average GPA, the program first computes the grade points for each course, which is the multiplication of the equivalent numerical grade **(A: 4.0, B: 3.0, C: 2.0, D: 1.0, and F: 0.0)** and the credit count of the course. Next, the program calculates the total grade points, the sum of the grade points of all courses, and divides it to the total credit count. For example, if a student got grade A for the first course, which has credit count of 3 and C for the second course with credit count of 5, then the average GPA of the student is (4.0 * 3 + 2.0 * 5) / (3 + 5) = 2.75. Finally, the program prints the average GPA with two digits of precision in the screen.

Hint: DO NOT use dictionary to map letter grades to their numerical equivalents. Use if/else or elif instead.

Sample Run 1:

```
Enter grade (A, B, C, D, or F): A
Enter credit count (2, 3, or 5): 3
If you are done, enter DONE; otherwise, just press enter:

Enter grade (A, B, C, D, or F): C
Enter credit count (2, 3, or 5): 5
If you are done, enter DONE; otherwise, just press enter:

Enter grade (A, B, C, D, or F): B
Enter credit count (2, 3, or 5): 2
If you are done, enter DONE; otherwise, just press enter:

Enter grade (A, B, C, D, or F): A
Enter credit count (2, 3, or 5): 5
If you are done, enter DONE; otherwise, just press enter:

Enter grade (A, B, C, D, or F): D
Enter credit count (2, 3, or 5): 2
If you are done, enter DONE; otherwise, just press enter: DONE

Average GPA is: 2.94
```

Sample Run 2:

```
Enter grade (A, B, C, D, or F): a
Invalid grade! Try again!

Enter grade (A, B, C, D, or F): g
Invalid grade! Try again!

Enter grade (A, B, C, D, or F): A
Enter credit count (2, 3, or 5): 1
Invalid credit count! Try again!


Enter credit count (2, 3, or 5): 4
Invalid credit count! Try again!


Enter credit count (2, 3, or 5): 3
If you are done, enter DONE; otherwise, just press enter:

Enter grade (A, B, C, D, or F): C
Enter credit count (2, 3, or 5): 5
If you are done, enter DONE; otherwise, just press enter: DONE

Average GPA is: 2.75
```